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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/000,147	10/19/2001	Alex Cho	49041-00018USPT	8492

7590

06/03/2003

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EXAMINER

COMBS, JANELL A

ART UNIT

PAPER NUMBER

1742

DATE MAILED: 06/03/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/000,147

Applicant(s)

CHO, ALEX

Examiner

Janelle Combs-Morillo

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-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 24 and 25 is/are allowed.
- 6) ☒ Claim(s) 1-23, 26, 27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☒ Interview Summary (PTO-413) Paper No(s) 7.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 26 and 27 are objected to because of the following informalities: lines 5-6 of claim 26 recites that the first temperature is held for a duration of 12 to 36 hours, while lines 7-8 state holding at a first temperature of at least 30 minutes. For the purpose of this Office action on the merits, the claims will be interpreted in the broadest scope (“at least 30 minutes”). Claim 27 likewise recites a range within a ranges as well. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The original specification does not support (explicitly or implicitly) an alloy “substantially free of scandium”.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3-11, 13, and 15-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Skinner et al (US 5,226,983 A).

Skinner teaches a process for heat treating an alloy comprising Al, Cu, Li, Mg, and Zr (see examples 2 and 3, column 6), comprising the steps of solution heating (column 5 line 1), quenching (column 5 lines 5-6, column 6 line 34), and a dual step ageing, such as- ageing at 160°C for 4 hours followed by ageing at 180°C for 16 hours (Example 3, column 6 line 64), or ageing at 170°C for 4 hours followed by ageing at 190°C for 16 hours (Example 2). Skinner teaches that the resulting product exhibits improved strength and ductility (column 3 lines 13-18, see also Ex. 2 and Ex. 3). Scandium is not mentioned in the alloys of Examples 2 and 3. The examiner points out that the difference between 180°C (356°F) and 160°C (320°F) is 36°F, which meets the instant limitation of  $\geq 10^\circ\text{F}$ .

Concerning independent claim 15, Skinner teaches that said heat treatment occurs after hot working (column 4 lines 45-50).

Because Skinner teaches a process including all of the presently claimed method steps, as well as performing said process on an Al-Cu alloy that meets the instant alloying ranges, it is held that Skinner anticipates the instant invention.

Concerning dependent claims 4-10 and 17-19, Skinner teaches in Example 2 an alloy consisting of: 3.1% Li, 2% Cu, 1% Mg, 0.5% Zr, balance aluminum, which falls within the presently claimed alloying ranges.

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Concerning dependent claim 11, Skinner teaches solutionizing at 540°C (1004°F) in Example 2.

Concerning dependent claims 13 and 20, as stated above, Skinner teaches the 2<sup>nd</sup> aging temperature is 36°F more than the first.

6. Claims 1-3, 5-8, 10, 11, 15, 16, and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Miyasato et al (US 5,865,911 A).

Miyasato teaches a process of working and heat treating an Al-Zn-Mg-Cu-Zr alloy, wherein said process comprises the steps of: hot rolling, solution heat treating at temperatures  $\geq$  880°F, quenching, cold stretching, and artificially ageing (see claim 1 column 19-column 20) in two steps such as 275°F for 3 hours and 335°F for 16 hours (column 7 line 49), which falls within the presently claimed aging time and temperature ranges (as well as other process conditions and alloying ranges). Therefore it is held that Miyasato anticipates the presently claimed invention.

Concerning independent claim 15, Miyasato teaches that said heat treatment occurs after hot working (see Miyasato at claim 1).

Concerning dependent claims 2 and 11, as stated above, Miyasato teaches cold stretching (working) prior to ageing, and solution heat treating at temperatures  $\geq$  880°F (see Miyasato at claim 1).

Concerning dependent claims 5-8, 10 and 18, Miyasato teaches an alloy comprising: 5.9-6.7% Zn, 1.6-1.86% Mg, 1.8-2.4% Cu, 0.08-0.15% Zr,  $\leq$  0.06% Si,  $\leq$  0.06% Fe (column 19 lines 55-59), balance aluminum, which falls within the presently claimed alloying ranges.

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***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 2, 14, 21, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Skinner et al (US 5,226,983 A), as applied to claims above.

As stated above, Skinner teaches a method of heat treating, including a dual aging, an Al-Cu-Li alloy. Skinner does not specify that a cold working step occurs prior to ageing. However, Skinner does teach a variety of (hot and cold) working operations can take place to form the alloy including direct and indirect extrusion, conventional and impact forging, and impact extrusion (column 4 lines 42-48). Therefore, it is within the disclosure of Skinner to cold work the alloy prior to solution heat treating.

Additionally, the examiner submits that the second temperature ageing range taught by Skinner of 356°F is a close approximation of the second temperature ageing range in claims 14, 21, 26, and 27 (340-355°F).

Because Skinner teaches a method comprising the steps of: hot and/or cold working an Al-Cu-Li alloy, solution heat treating, quenching, followed by dual ageing in temperature and time ranges that fall within or are close approximations to the presently claimed time and temperature ranges, it is held that Skinner has created a prima facie case of obviousness of the presently claimed invention.

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9. Claims 10, 22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyasato et al (US 5,865,911 A) as applied to claims above in view of ASM Specialty Handbook, "Aluminum and Aluminum Alloys", p 45.

As stated above, Miyasato teaches a process of working and heat treating an Al-Zn-Mg-Cu-Zr alloy, wherein said process comprises the steps of: hot rolling, solution heat treating at temperatures  $\geq 880^{\circ}\text{F}$ , quenching, cold stretching, and artificially ageing (see claim 1 column 19-column 20) in two steps such as  $275^{\circ}\text{F}$  for 3 hours and  $335^{\circ}\text{F}$  for 16 hours (column 7 line 49), which falls within the presently claimed dual ageing time and temperature ranges. Miyasato teaches that said Al-Zn-Mg-Cu-Zr alloy can optionally contain Ag (column 5 line 37).

"Aluminum and Aluminum Alloys", teaches that Silver additions to Al-Zn-Mg alloys are effective in improving strength and stress-corrosion resistance (see p 45). It would have been obvious to one of ordinary skill in the art to perform the process of working and heat treating an Al-Zn-Mg-Cu-Zr alloy (as taught by Miyasato) with added Ag (as taught by both Miyasato and "Aluminum and Aluminum Alloys") because it is known that Ag additions to Al-Zn-Mg alloys are effective in improving strength and stress-corrosion resistance ("Aluminum and Aluminum Alloys", p 45).

10. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyasato et al (US 5,865,911 A) in view of Sprowls (US 3,198,676).

Miyasato does not teach aging at a first temperature for 6-50 hours, as presently claimed in claim 12. However, Sprowls, who is drawn to dual aging Al-Zn-Mg-Cu alloys that overlap the range in Miyasato (see Sprowls column 2 lines 28-35, etc.), teaches that aging 5-30 hours at  $175-275^{\circ}\text{F}$  (column 3 lines 15, 20-25) followed by aging at  $315-380^{\circ}\text{F}$  for 2-100 hours produces

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superior stress corrosion cracking resistance (column 3 line 44). It would have been obvious to one of ordinary skill in the art to perform aging at a first temperature for 5-30 hours at 175-275°F, as taught by Sprowls, because Sprowls teaches that said ageing produces superior stress corrosion cracking resistance (column 3 line 44).

***Allowable Subject Matter***

11. The following is an examiner's statement of reasons for allowance: the prior art does not teach or suggest a process of dual ageing an AA2195 alloy substantially as presently claimed in independent claims 24 and 25.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Response to Amendment/Arguments***

12. In the response filed on March 11, 2003, applicant amended claims 1, 5-7, 10, and 15, and added new claims 22-27, and submitted various arguments traversing the rejections of record. The objection to the claims has been overcome.

Applicant's argument that the present invention is allowable over Waldron because Waldron teaches that Sc markedly alters the chemistry of the alloy has been found persuasive, however, as stated above, the original specification does not support an alloy "substantially free of scandium". The examiner suggests rewriting the claim with closed claim language using a



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transitional phrase such as "consisting essentially of" or "consisting of" (see MPEP 2111.03) to overcome the 112 first paragraph rejection (or filing a CIP would likewise overcome said rejection).

***Conclusion***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle Combs- Morillo whose telephone number is (703) 308-4757. The examiner can normally be reached Monday through Friday from 7:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on (703) 308-1146. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



GEORGE WYSZOMIERSKI  
PRIMARY EXAMINER

jcm 

June 2, 2003